

## ABSTRACT OF THE DISCLOSURE

In accordance with an aspect of the invention, a method of forming a trench isolation region includes forming a trench within a substrate. A silanol layer is formed to partially fill the trench and then converted, at least some of the silanol, to a compound including at least one of  $\text{SiO}_n$  and  $\text{RSiO}_n$ , where R includes an organic group. An electrically insulative material is formed over the converted silanol to fill the trench. In another aspect of the invention, a method of forming a trench isolation region includes forming a trench within a substrate. A first layer of at least one of  $\text{Si(OH)}_x$  and  $(\text{CH}_3)_y\text{Si(OH)}_{4-y}$  is formed to partially fill the trench. At least some of the  $\text{Si(OH)}_x$  if present is converted to  $\text{SiO}_2$  and at least some of  $(\text{CH}_3)_y\text{Si(OH)}_{4-y}$  if present is converted to  $(\text{CH}_3)_x\text{SiO}_{2-x}$ . Next, a layer of an electrically insulative material is formed to fill the trench.